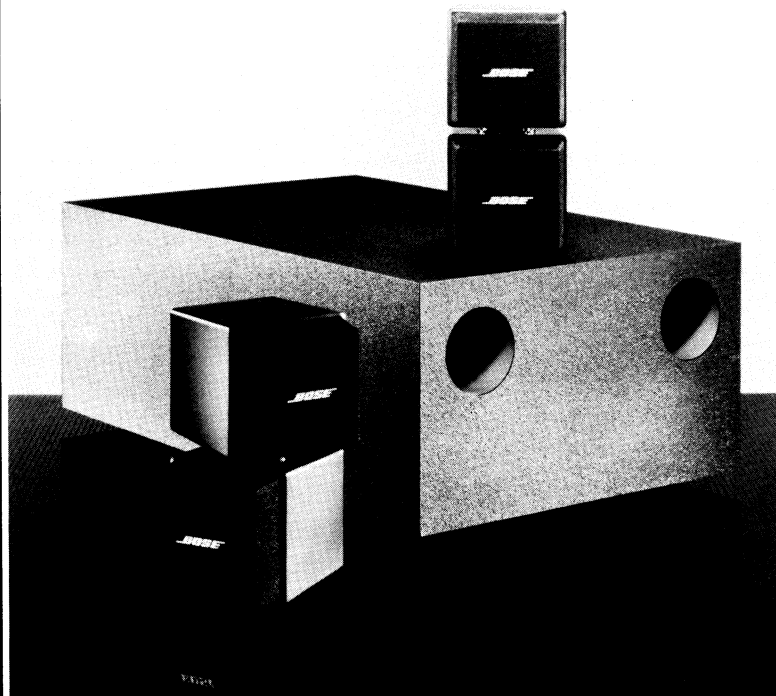
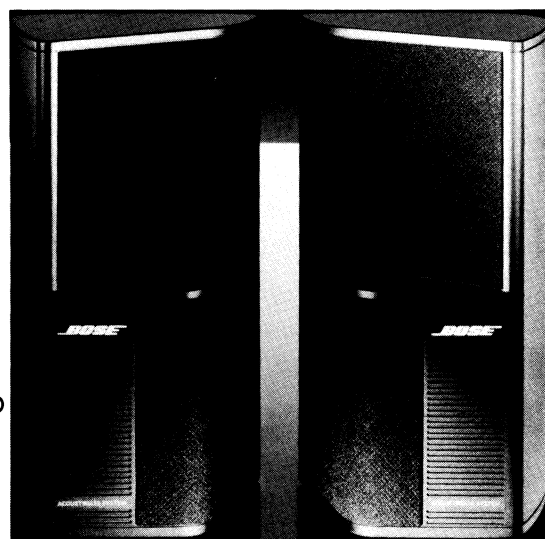


AM-5® AND SE-5 ACOUSTIMASS® SPEAKER SYSTEMS



**AM-5 Acoustimass
Speaker System with
Cube Array Speakers**



**SE-5 Stereo Targeting®
Array Speakers**

SPECIFICATIONS

Transducers:	2-6" Low frequency drivers 4-2.5" Magnetically shielded midrange drivers
Nominal Impedance:	AM-5: 4 Ohms SE-5: 4 Ohms
Power Requirements:	15 Watts minimum 100 Watts maximum
Dimensions: (Acoustimass Module) (AM-5 Cube Array) (SE-5 Stereo Targeting Array)	19.2H cm x 32.1W cm x 51.3D cm 18.7H cm x 11.7W cm x 9.2D cm 10.9H cm x 12.3W cm x 9.0D cm
Finish: (Acoustimass Module) (Speaker Array)	Scratch resistant Satin finish, color Black Black polymer finish
Weight:	33 lbs per packaged system

Table Of Contents

DISASSEMBLY/ASSEMBLY PROCEDURES	2
TEST PROCEDURES	4
The Acoustimass® System	4
Acoustimass Module Testing	6
Satellite Speaker Testing	7
Tables and Figures:	
Acoustimass Box Assembly Parts	8
Figure 5: Acoustimass Box Assembly	8
Crossover Parts List	9
Figure 6: Crossover Network	9
AM-5® Cube Array Speaker Assembly Parts	10
Figure 7: AM-5 Cube Array Speaker Assembly	11
SE-5 Stereo Targeting® Array Speaker Assembly Parts	12
Figure 8: SE-5 Stereo Targeting Array Enclosure	12
AM-5 Packaging Parts List	13
Figure 9: AM-5 Packaging	13
SE-5 Packaging Parts List	14
Figure 10: SE-5 Packaging	14

PROPRIETARY INFORMATION

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF BOSE CORPORATION WHICH IS BEING FURNISHED ONLY FOR THE PURPOSE OF SERVICING THE IDENTIFIED BOSE PRODUCT BY AN AUTHORIZED BOSE SERVICE CENTER OR OWNER OF THE BOSE PRODUCT, AND SHALL NOT BE REPRODUCED OR USED FOR ANY OTHER PURPOSE.

DISASSEMBLY/ASSEMBLY PROCEDURES

1. Acoustimass® Module Enclosure (Per Figure 5):

1.1 Remove all screws (3) and (5), including those used to secure the feet on the cover of the Acoustimass box.

1.2 Pry the back cover away from the the cabinet.

2. AM-5® Cube Array Enclosure (Per Figure 7):

2.1 Remove the grilles (1) by pulling on all four sides simultaneously for each speaker.

2.2 Remove the four screws (2) holding the twiddler™ speakers (3) in place. The speakers can now be pulled straight out of the enclosure.

3. SE-5 Stereo Targeting® Array Enclosure (Per Figure 8):

Note: The following procedure can be used to remove both the top and bottom grilles (1), (2). No hand tools should be necessary.

3.1 Remove the grille by first prying one corner of the grille outward until the tab has released from the enclosure. Next, slide your finger towards the opposite corner until the next grille tab is released. The grille should now be easily removed from the enclosure.

3.2 Remove the four screws holding the speaker. The twiddler can now be pulled straight out of the enclosure.

4. Woofer Replacement (Per Figure 5):

4.1 Follow the steps in **Procedure 1**.

4.2 Remove the four screws (7) that hold the woofer (6) in place.

4.3 Cut the wires to the existing woofer as close to the terminals as possible and carefully lift the woofer out of the cabinet.

4.4 Strip the wires and reconnect them to the replacement woofer.

Notes:

A. Left Woofer: The Orange wire is connected to the positive (+) speaker terminal and the Brown wire is connected to the negative (-) speaker terminal.

B. Right Woofer: The Yellow wire is connected to the positive (+) speaker terminal and the Green wire is connected to the negative (-) speaker terminal.

4.5 Remount the woofer into the cabinet with the existing screws.

4.6 Reattach the back cover using the appropriate screws including the four screws that hold the feet in place. Next, attach the center screw.

5. AM-5 Twiddler Replacement:

5.1 Remove the grille(s) by following the steps in **Procedure 2**.

5.2 Remove the twiddler from the array enclosure and cut the wires as close to the twiddler terminals as possible.

5.3 Strip the wires and reconnect them to the replacement twiddler.

6. SE-5 Twiddler Replacement (Per Figure 8):

6.1 Remove the grille(s) by following the steps in **Procedure 3**.

6.2 Remove the four twiddler mounting screws (8). The twiddler can now be taken out of the SE-5 enclosure.

6.3 Cut the wires as close to the twiddler terminals as possible.

6.4 Strip the wires and reconnect them to the replacement twiddler. Make sure the gasket (5) is well seated before remounting the speaker.

Notes:

- A.** The Black wire is connected to the negative (-) twiddler™ terminal and the White or Brown wire is connected to the positive (+) twiddler terminal.
- B.** The twiddlers are wired out of phase with the Acoustimass® woofers.
- C.** When reattaching the rear panel, make sure the batting is clear of the mounting holes before attempting to attach the screws.

7. Grille Replacement:

7.1 AM-5® Cube Speaker Array: Align the grille to the front of the enclosure. To attach, press the grille lightly onto the enclosure.

7.2 SE-5 Stereo Targeting® Array: Hold the grille up to the enclosure such that the tabs are aligned with the slots on the right side of the cube. Next, hold the grille diagonally to the cube and slide it in so that the tabs fit into the slots. Finally, press the left side of the grille firmly to the enclosure until it snaps into place. Note that the grilles are not interchangeable.

TEST PROCEDURES

Note: It is important to note that both woofers, crossover network, system and tweeter protection network are located in the Acoustimass® module. The satellite speakers are separate and fed from the Acoustimass module. The following procedures will test the complete system as well as each sub-system individually.

The Acoustimass System

1. Woofer Rub and Tick Test: Since both left and right channel woofers are in the same enclosure, it is recommended that both speaker channels be tested simultaneously. See **Figure 1** for the following test setup.

1.1 Connect the signal generator to the input of the power amplifier.

1.2 Connect the output of the power amplifier in series with both the left and right input terminals of the Acoustimass module box.

1.3 Connect the left satellite speaker to the left output terminals and the right satellite speaker to the right output terminals of the Acoustimass module box.

1.4 Adjust the frequency of the signal generator to 10 Hz and adjust the output of the power amplifier to 10 volts rms. No extraneous noise such as rubbing, scrapping or ticking should be heard.

To distinguish between normal suspension noise and rubs or ticks, remove the back panel of the Acoustimass enclosure (see Disassembly Procedures) and displace the woofer cone slightly with your fingers. If the noise stays the same, it is suspension noise and the woofer is fine. Suspension noise will not be heard with regular program material.

Note: If little or no air is felt coming from the ports, the woofers are connected out-of-phase. Check the wiring to make sure it is correct. If the wiring appears correct, go on to the testing of the Acoustimass module box.

2. Woofer Sweep Test: Sweep the signal generator slowly from 10 Hz to 1 kHz at 10 volts. There should be no loud extraneous noise. Replace the suspect woofer if there are loud buzzes or distortion.

System Test Diagram

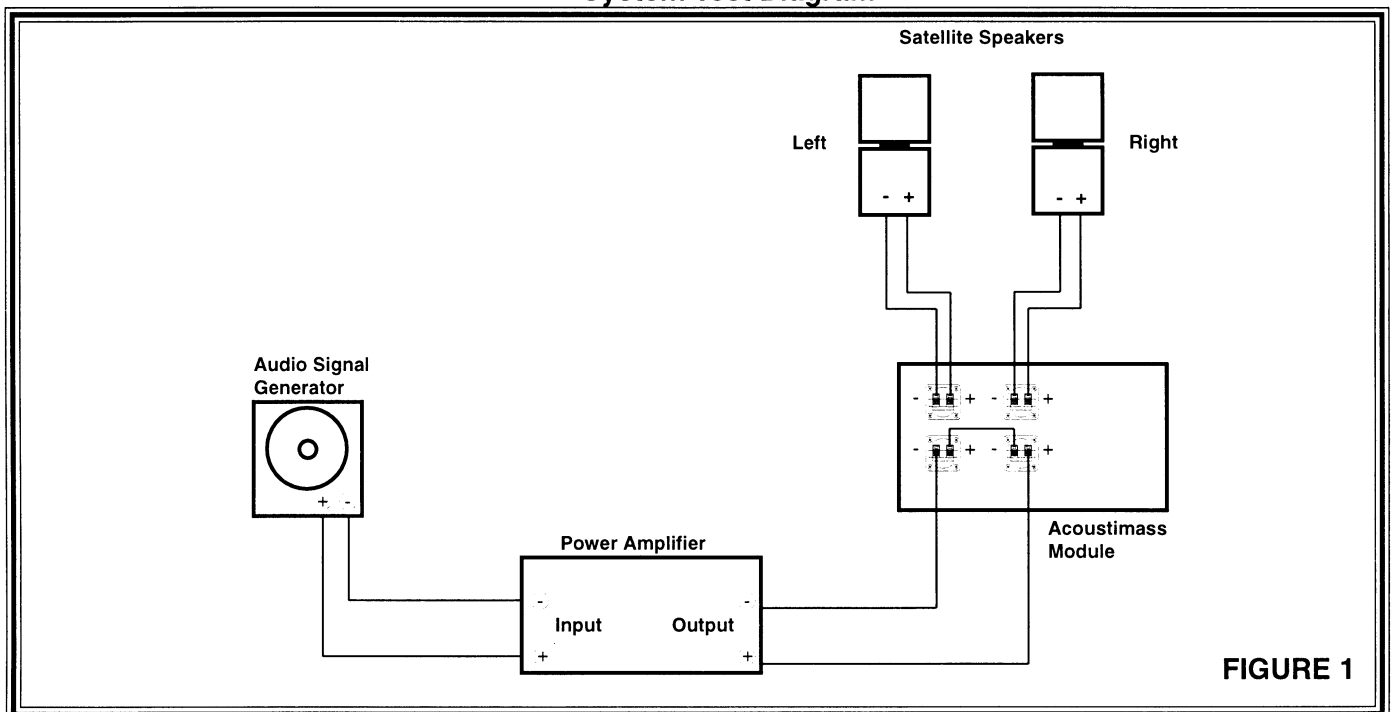


FIGURE 1

Note: There should be no buzzes or rattles within the Acoustimass® module enclosure. Redress any component or wire that buzzes.

3. **Cube Array Sweep Test:** Reduce the output of the amplifier to 5 volts rms at 150 Hz. Then, gradually sweep the generator from 150 Hz to 15 kHz. There should be no loud extraneous sounds from the satellite speakers. If there is any loud buzzing or distortion, replace the suspect array driver.

If there is no output from the satellite speaker, check the output from the Acoustimass module's output terminals for each channel. The Cube Array lamp may be open which would cause no output at the cube array.

Note: There should be no buzzes or rattles within the Acoustimass module enclosure. Redress any component or wire that buzzes.

4. **Automatic System Protection Test:** To test protection circuitry, test each channel separately.

Apply a 90 Hz, 20 volt signal to one module input terminal for a maximum of 40 seconds. After the signal has been applied, there will be a gradual reduction in sound pressure output.

A light (see RT1 in **Figure 2**) should be dimly visible through the longest of the two ports in the Acoustimass module box. This indicates that the protection network is functioning properly. Next, reduce the signal to 1 volt and the lamp will no longer be visible.

Note: If the speaker fails as the voltage is varied in this test, replace the lamp (RT1) and polyswitch (K1) for the defective channel. Repeat the previous step for the other channel.

5. **Woofer Phase Test:** Apply a 45 Hz, 10 volt signal through both channels of the system. Next, disconnect either of the input channels. If the bass increases with the removal of the one channel, the woofers are wired out-of-phase and must be corrected.

Schematic Diagram

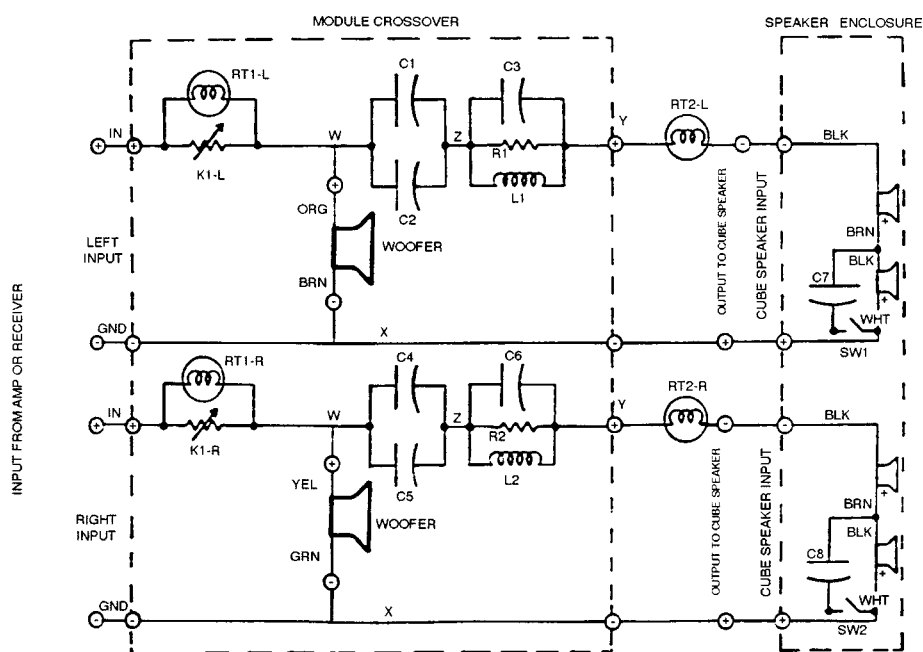


FIGURE 2

Acoustimass Module Testing

6. **Woofer Rub and Tick Test:** Repeat **Procedure 1**.
7. **Woofer Sweep Test:** Repeat **Procedure 2**.
8. **Crossover Test:** Attach an 8Ω, 15 watt resistor to both left and right Acoustimass box output terminals in place of the cube array speakers, (see **Figure 3**).
 - 8.1 Apply a 10 Hz, 20 volt signal to both inputs of the Acoustimass module and measure the voltage across each resistor. The reading should be 0 volts.
 - 8.2 Increase the audio signal generator to 100 Hz, at 20 volts and measure the voltage across each resistor. The reading should be approximately 2 volts.
 - 8.3 Increase the input signal to 150 Hz at 20 volts and measure the voltage across each resistor. The reading should be approximately 5 volts.
 - 8.4 Increase the input signal to 15 kHz but reduce the voltage to 10 volts. Then measure the voltage across each resistor.

The reading should be approximately 5 volts.

These tests indicate that the crossover network is working correctly. If there is no output across either 8Ω resistor, check one or both tweeter protection lamps for a failure. Remove the back cover (see disassembly procedure) and check each RT2 for continuity.

9. **Automatic System Protection Test:** Repeat **Procedure 4**.
10. **Woofer Phase Test:** Repeat **Procedure 5**.
11. **Crossover Phase Test:** Repeat **Procedure 6**.

Module Test Diagram

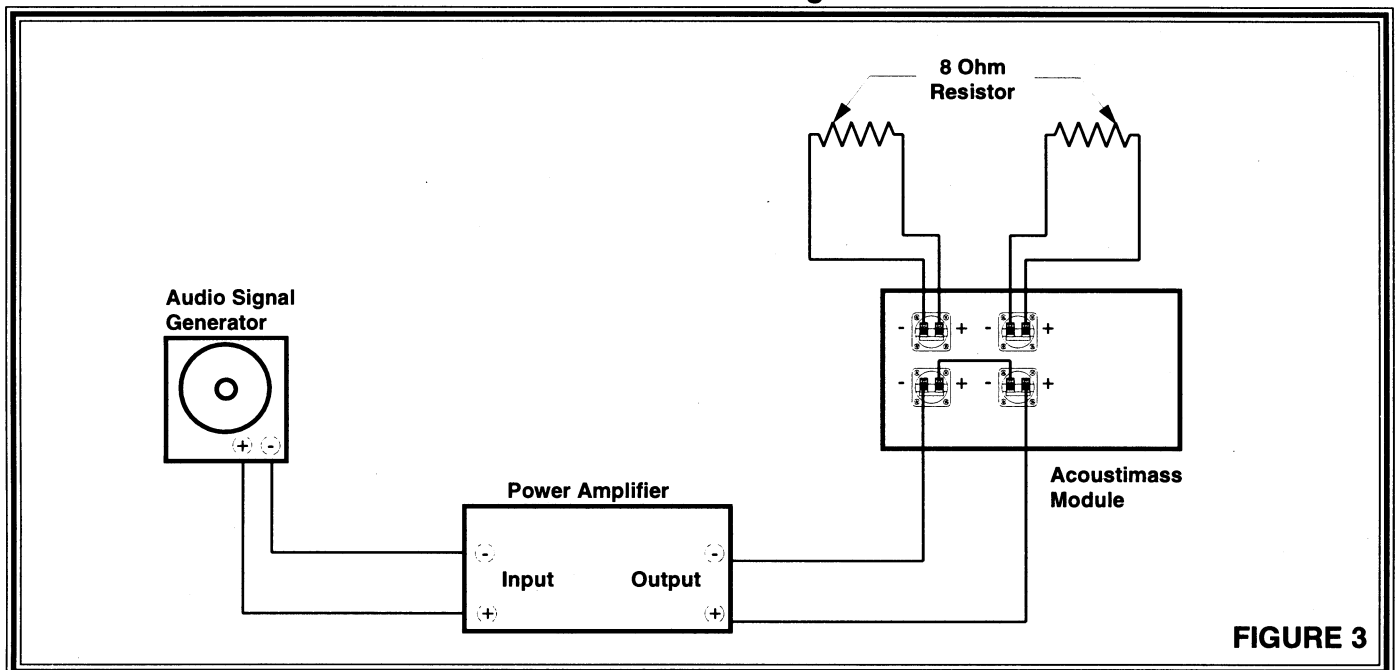


FIGURE 3

Satellite Speaker Test

Note: An AM-5® Cube Array speaker is used to illustrate speaker testing in Figure 4. The same setup is used to test the SE-5 Stereo Targeting® Satellite speakers.

12. Rub and Tick Test:

- 12.1** Connect the signal generator to the input of the power amplifier.
- 12.2** Connect the output of the power amplifier directly to the satellite speaker, (positive to negative and negative to positive). See **Figure 4**.
- 12.3** Adjust the frequency of the generator to 100 Hz and the output of the power amplifier to 2.5 volts rms. No extraneous noises such as rubbing, scraping or ticking should be heard.
- 13. Sweep Test:** Sweep the signal generator from 100 Hz to 10 kHz at 2.5 volts. No extraneous noises such as rubbing, scraping or ticking should be heard.

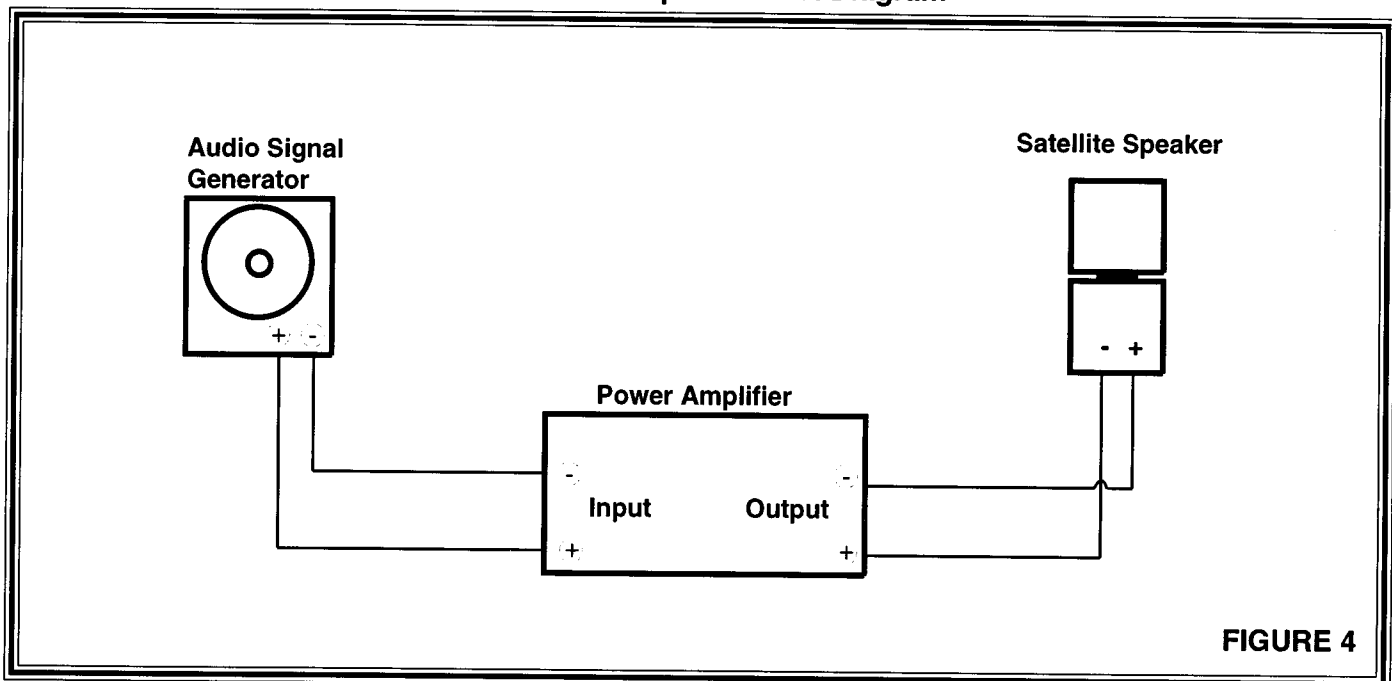
Note: There should be no buzzing or rattling from within the satellite speaker enclosure. Redress any wires or components that are causing noise.

14. Phase Test:

- 14.1** To perform this test, first remove the grilles from the satellite speaker, (see **Disassembly/Assembly Procedure 2** for the AM-5 grille removal or **Procedure 3** for the SE-5 grille removal).
- 14.2** Apply 1.5 volts across the positive and negative input terminals of each twiddler™. The cone should move outward.

Note: The satellite speakers are wired out of phase with the woofers. This is accomplished via the internal wiring of the Acoustimass® module.

Satellite Speaker Test Diagram



Acoustimass® Box Assembly Parts (Per Figure 5)

Item Number	Description	Part Number	Quantity Per Assy	Reference
1	Connector, Terminal Cup, 2 Position	120711	4	
2	Screw, TAPP, 6-13 x .5, PAN/XREC/SQ	172783-08	16	
3	Screw, TAPP, 8-11 x 1.25, PAN/XRC/S	172672-20	14	
4	Bumper, Recessed, Foot, .625"	103887	4	
5	Screw, TAPP, 8-11 x 1.625, PAN/XR/S	172672-26	1	
6	Woofer, 6" 133411 (replace in pairs)	133411	2	
7	Screw, TAPP, 8-10 X 1, HEXW/HEX	121294-16	8	
8	Batting, Polyester, 12 x 2	116082	-	See Note

Note: This item is not normally a stocked service part.

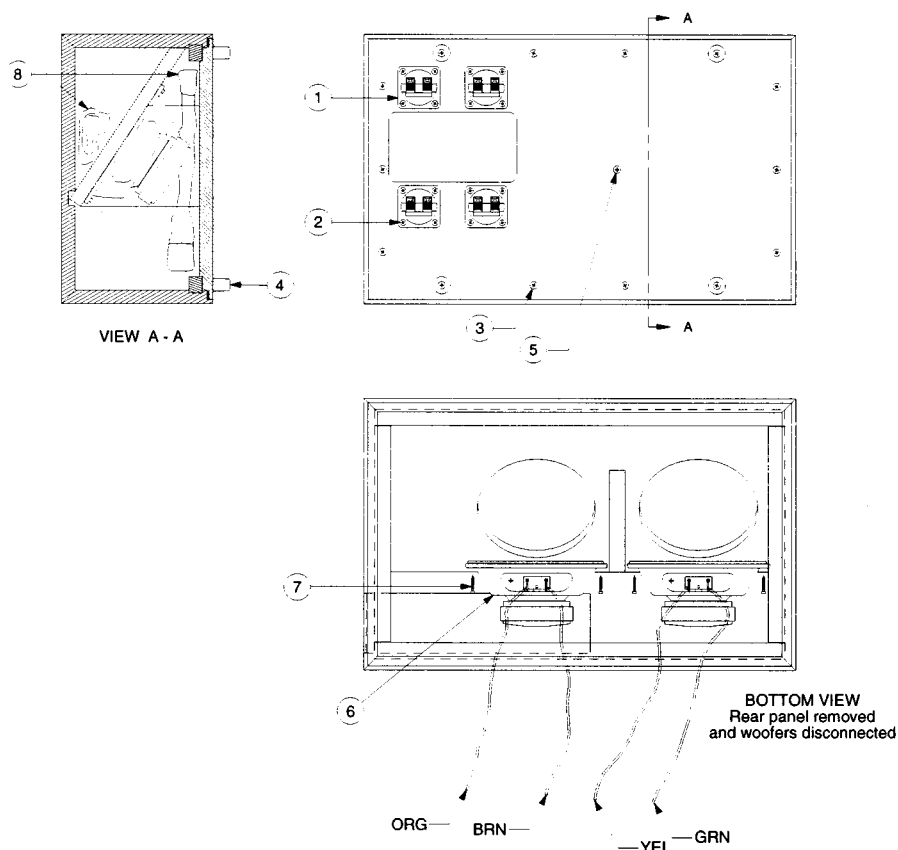


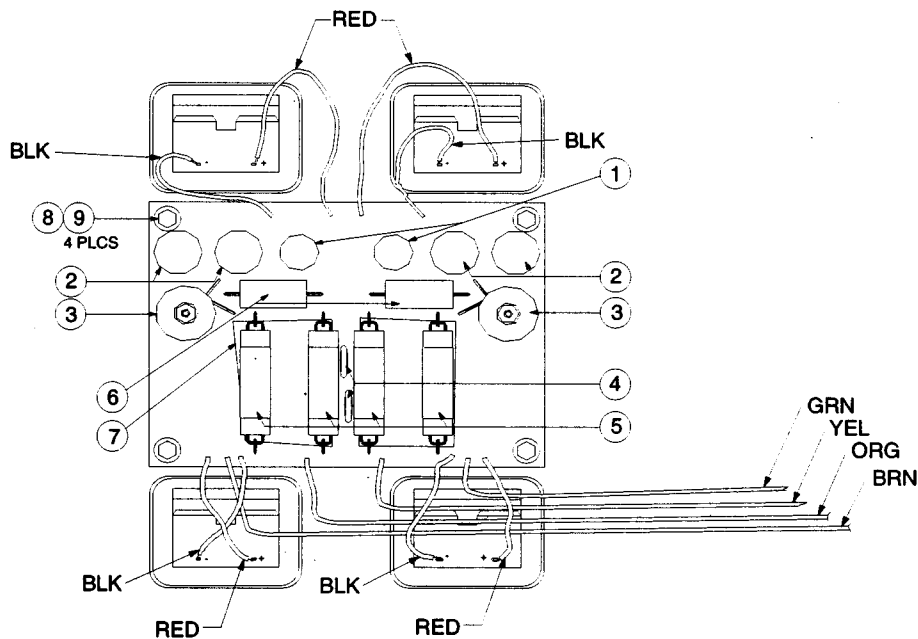
Figure 5: Acoustimass Box Assembly

Crossover Parts List, Assembly Part Number 130487 (Per Figure 6)

Item Number	Description	Part Number	Quantity Per Carton	See Note
1	Capacitor, EL, BP, 50V, 20%, 15uF	132079	2	
2	Capacitor, EL, BP, 50V, 20%, 33uF	131974	4	
3	Inductor, 300uH	131973	2	
4	Polyswitch, 50V, 31mm	121247	2	
5	Minilamp, 2.5A, 24VDC, Formed	117805	4	
6	Resistor, WW, 5W, 10%, 3.3Ω	132105-3R3	2	
7	Tape, Aluminum Foil	132301	2	1
8	Screw, TAPP, 8-10 x .625, HEXW/HEX	121294-10	4	
9	Bumper, Recessed, Foot, .625"	125058-1	4	2

Notes:

1. This part is not normally a stocked item.
2. This part is not shown and is located between the PC board and cabinet wall.

**Figure 6: Crossover Network**

AM-5® Cube Array Speaker Assembly Parts (Per Figure 7)

Item Number	Description	Part Number	Qty. Per Paired Assembly	Reference
1	Grille Assy, Satellite: Black: or White: or Dark Gray	130486-3 130486-12 130486-13	4	See Note
2	Screw, TAPP, 8-11 X 1.625, PAN/XR/S	172672-26	8	
3	Twiddler™, 2.25", Shielded	120703	4	
4	Gasket, Twiddler, AM-3/5	131972	4	
5	Baffle, Black	131743-1	4	
6	Batting, Polyester. 12 x 2	116082	-	
7	Upper Cube, Black	132553-1	2	
8	Nut, Push-On, Slotted, 6 Prong	131979	2	
9	Lockwasher, Spring, .563"	132977	2	
10	Lower Cube, Black	132552-1	2	
11	Screw, TAPP, 8-10 x .625, HEXW/HEX	121294-10	8	
12	Switch, Slide	131970	2	
13	Gasket, Switch	131971	2	
14	Connector, Barrier GLTN, 2 Position, Black	131904	2	
15	Tape, Foam, .625"	118223	2	
16	Cap., EI, BP, 85, 50V, 10%, 4.5 uF	131428	2	

Note This is not normally a stocked service part.

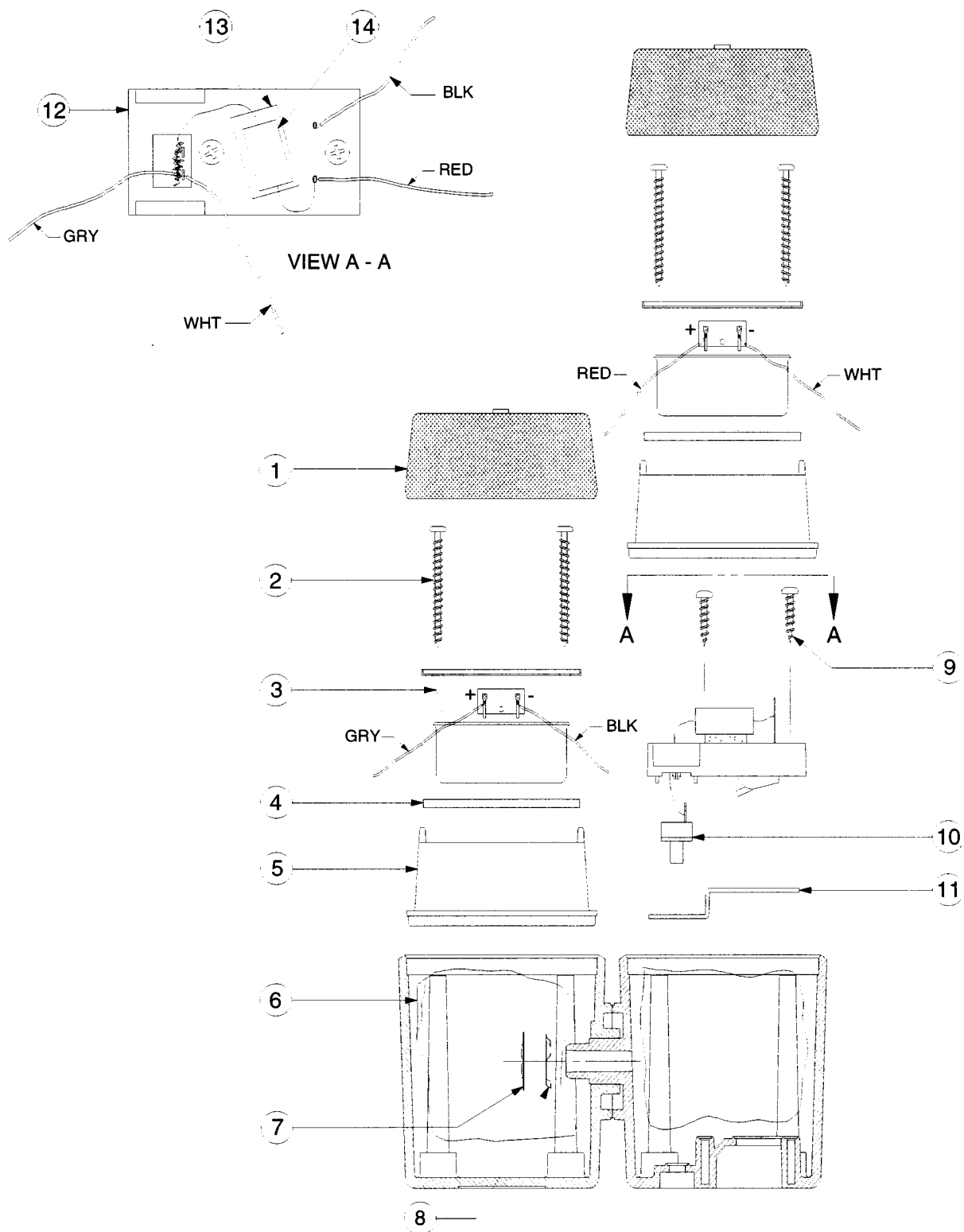


Figure 7: AM-5® Cube Array Speaker Assembly

SE-5 Stereo Targeting® Array Speaker Assembly Parts (Per Figure 8)

Item Number	Description	Part Number	Quantity Per Paired Assembly	See Note
1	Grille, Top, SE-5	135827-1	4	
2	Grille, Bottom, SE-5	136496-1	4	
3	Screw, Rear Panel, SE-5 Twiddler™ Assy	135831	12	
4	Terminal Strip, SE-5 Twiddler Assy	135832	2	
5	Gasket, Terminal Strip, SE-5 Twiddler	135833	2	1
6	Screw, Terminal Strip, SE-5 Twiddler Assy	135834	4	1
7	Twiddler	128735	4	1
8	Screw, Twiddler, SE-5	135828	16	1
9	Capacitor, 4.7uF, 100V	135835	2	1
10	Batting, Polyester, 12 x 2	116082	-	1, 2

Notes:

1. Part is not shown in **Figure 8**.
2. This item is not normally a stocked service part.

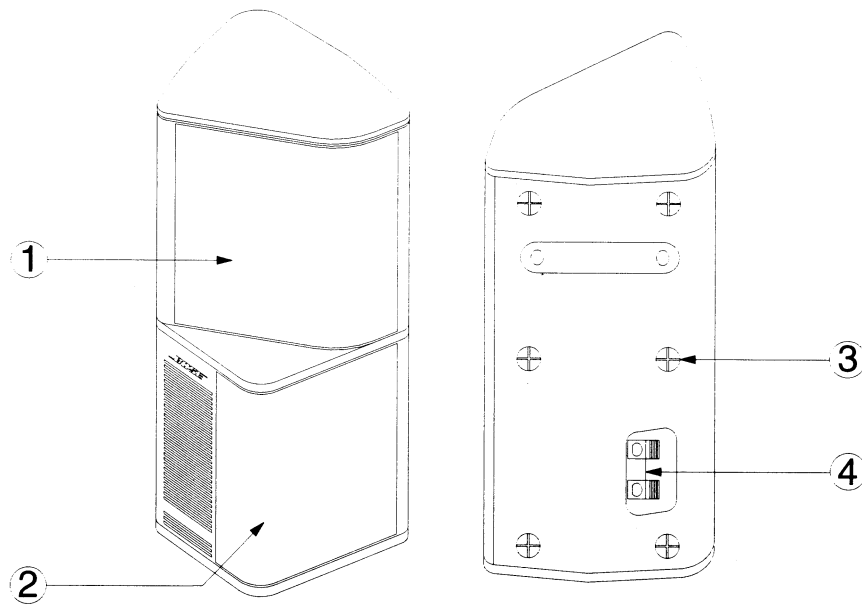


Figure 8: SE-5 Stereo Targeting Array Enclosure

AM-5® Packaging Parts List (Per Figure 9)

Item Number	Description	Part Number	Qty. Per Assy	Reference
1	Owner's Manual, AM-5	133844	1	See Note
2	Card, Warranty Info, U.S.	181357	1	
3	Card, Warranty Info, Multi-Language	181460	1	
4	List, Warranty, Service Stations	122766	1	
5	Brochure, All Products	141478	1	
6	Polybag, 14.38 x 9.87 x 2 mil	103351	1	
7	Packing End Cap	138239	2	
8	Polybag, 13.5 x 33.5 x 9.13 x 3 mil	106595	1	
9	Carton, RSC, U.S.	142248	1	
10	Wire, 18/2 Zip Cord, Bk, 20 Feet	130915	4	
11	Packing Tray	138224	1	
12	Polybag, 8 x 12 x 4 x 1 mil	132432	2	

Note: This part splits into 2 pieces.

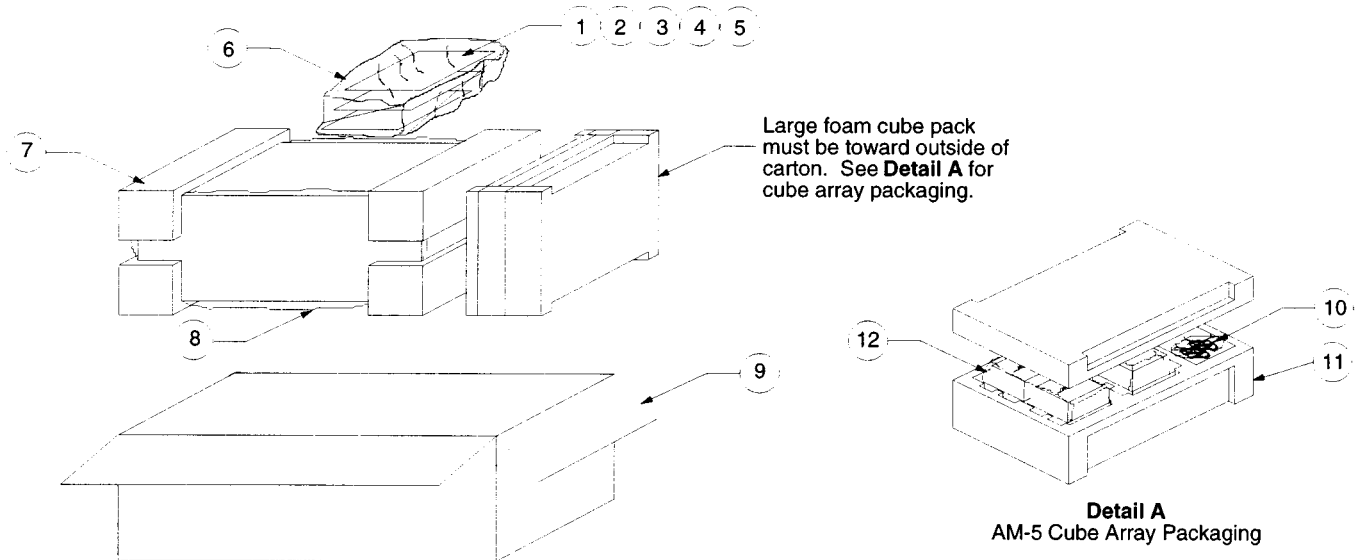


Figure 9: AM-5 Packaging

SE-5 Packaging Parts List (Per Figure 10)

Item Number	Description	Part Number	Qty. Per Assy	Reference
1	Owner's Manual, SE-5	134969	1	See Note
2	Card, Warranty Info, U.S.	181357	1	
3	Card, Warranty Info, Multi-Language	181460	1	
4	List, Warranty, Service Stations	122766	1	
5	Brochure, All Products	141478	1	
6	Polybag, 14.38 x 9.87 x 2 mil	103351	1	
7	Packing End Cap	138239	2	
8	Polybag, 13.5 x 33.5 x 9.13 x 3 mil	106595	1	
9	Carton, RSC, U.S.	142250	1	
10	Filler, Top, SE-5 Satellite	135839	1	
11	Filler, Bottom, SE-5 Satellite	135838	1	
12	Wire, 18/2 Zip Cord, Bk, 20 Feet	130915	4	

Note: This part splits into 2 pieces.

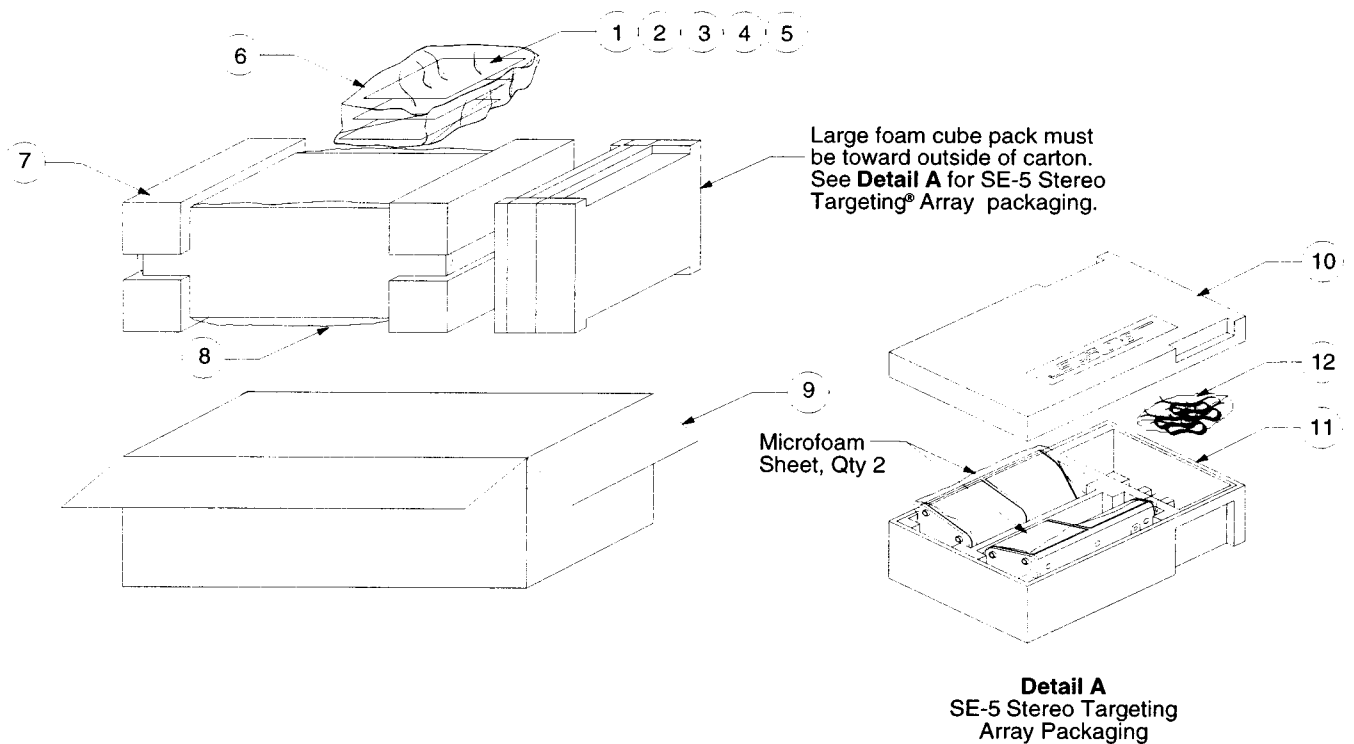


Figure 10: SE-5 Packaging

AM5 First Production Cubes



Non repairable
Replace with Falcon Cubes.
177904-19 - Black
177904-29 - White

Early version of first production AM5 cube. Driver mounted by single screw through driver back plate.



Drivers can be replaced, part number 184473

If the cubes become detached, they can not be repaired.
Replace with Falcon cubes.
177904-19 - Black
177904-29 - White

Later version of first production AM5 cube. Driver mounted by four screws through driver basket.